Polystichum lonchitis in Central Quebec–Labrador

MARCIA J. WATERWAY* and THOMAS T. LEI*, **

North American distribution maps for the Northern Holly Fern, *Polystichum lonchitis* (L.) Roth, show a disjunct range from alpine areas in the western United States and Canada to the northern Great Lakes region, the Gaspé Peninsula, Nova Scotia, Newfoundland, and Greenland (Fernald, 1935; Hultén, 1958, 1968; Wagner, 1979). One isolated station at Richmond Gulf on the eastern shore of Hudson Bay (Rousseau, 1974; Payette & Lepage, 1977) links the northern range of this species in Alaska, British Columbia, and Alberta with its distribution on the coast of Greenland. Rouleau (1956) reported *P. lonchitis* from Labrador but without locality data or specimen citation. Since a specimen has never been located to verify this report, the occurrence of the Northern Holly Fern in Labrador has been considered doubtful (Rousseau, 1974; Payette & Lepage, 1977) links the northern range of this species in Grenfell-Forbes Northern Labrador Expedition of 1931, noted that Rev. Hettasch had seen *P. lonchitis* growing on Ogualik Island (Cod Island) on the Labrador coast (57°47′N, 61°47′W) but had not collected it. This brief mention may have been the basis for Rouleau's including it in his list for Labrador.

Our recent collections from the Schefferville region (*Lei s. n.*, 20 July 1980, MTMG; *Waterway 2140, 30 July 1981, MTMG, CAN)* confirm the presence of *P. lonchitis* in the central interior of the Quebec-Labrador peninsula. In 1980, a specimen was collected from a population of about ten to fifteen individuals growing on a protected, east-facing slope of Geren Mountain in the saddle between Geren Mountain and Sunny Mountain (55°04′N, 67°14′W). The plants were small (10–15 fronds each) and separated from one another by distances of about 0.5 m. *Phegopteris connectilis, Carex scirpoidea, Salix vestita* and *Anemone parviflora* were observed at the same site.

An attempt to relocate this population in 1981 in order to gather more information about the habitat and associated species resulted in locating a second site in the same general area. This site is also on an east-facing slope of Geren Mountain, facing Sunny Mountain, at an elevation of approximately 740 m. Treeline occurs at about 585 m on this slope, but a few, very stunted *Picea marina* trees were found near the *P. lonchitis*. Both sites are in Quebec but located only 2 km from the provisional border with Labrador.

At the site found in 1981, a single clump of *P. lonchitis* with more than 100 fronds was found growing on a step-shaped dolomitic boulder located in a sheltered draw a short distance below a talus slope which still had a large snowpatch remaining in late July. Both hematite and dolomite occur in the vicinity. Most of the ground surface in the draw is moss-covered, giving the area a distinctly greener appearance than the surrounding dry, alpine tundra. Species diversity is greater in this protected area below the snowpatch than in the surrounding tundra vegetation.

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*McGill University Herbarium, Dept. of Plant Science, Macdonald College of McGill University, 21,111 Lakeshore Road, Ste. Anne de Bellevue, Quebec H9X 1C0, Canada.

**Present address: Dept. of Botany, Erindale College, University of Toronto, Mississauga, Ont. L5L 1C6, Canada.

Co-occurring calciphilic species include *Carex scirpoidea, C. vaginata, Salix vestita, Anemone parviflora, Arabis alpina, Saxifraga aizoon, Dryas integrifolia, Bartsia alpina, Castilleja septentrionalis* and *Solidago multiradiata*. Several additional species usually found in damp, often forested habitats, including *Gymnocarpium dryopteris, Streptopus amplexifolius, Coptis trifolia, Viola adunca, Pyrola minor, Trientalis borealis, Linnaea borealis,* and *Viburnum edule* indicate the moist, protected nature of the site. Other tundra species growing in the immediate vicinity of the *P. lonchitis* are *Lycopodium alpinum, L. clavatum, Carex bigelowii, Poa arctica, Juncus trifidus, Salix herbacea, S. uva-ursi, Oxyria digyna, Cerastium alpinum, Ranunculus allenii, Cardamine bellidifolia, Rubus acaulis, Sibbaldia procumbens, Epilobium latifolium, Pyrola grandiflora, Phyllodoce caerulea,* and *Taraxacum lapponicum*.

Previously reported localities for *P. lonchitis* in eastern North America are either in the Great Lakes region, often associated with limestone or dolomite of the Niagara Escarpment (Fernald, 1935; Soper, 1954; Thompson, 1962; Marquis & Voss, 1981) or in coastal or oceanic regions including the Gaspé Peninsula (Rousseau, Wynne-Edwards & Dansereau, 1937; Scoggan, 1950), Cape Breton, Nova Scotia (Roland & Smith, 1969), Newfoundland, the east coast of Hudson Bay (Rousseau, 1974) and possibly the Labrador coast (Abbe, 1936). Habitat data for most of these coastal localities also suggest a calcareous substrate, either of limestone, dolomite, or gypsum. Most eastern habitats are talus slopes or other rocky areas and the majority are shaded. In western North America, *P. lonchitis* has a continental as well as a coastal distribution, and is usually found in the subalpine forest zone (Wagner, 1979).

The stations we have discovered represent the first report of *P. lonchitis* from a continental situation in northeastern Canada. Their location in the Labrador Hills, just north of the iron-mining district of Schefferville is more than 600 km east from the nearest station on Hudson Bay and more than 600 km north from the localities in the Gaspé Peninsula. The occurrence of two sites in the same area suggests that *P. lonchitis* can become established there when the spores land on a suitable substrate (dolomite) in a favorable microhabitat. Many other such lush, protected sites with dolomitic substrate occur in the Labrador Hills, and *P. lonchitis* very likely occurs in some of them. Further exploration in this and other subarctic regions of Canada may well result in the discovery of other such isolated localities, thus eliminating the apparent disjunctions in the North American range of *P. lonchitis*.

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LITERATURE CITED

ABBE, E. C. 1936. Botanical results of the Grenfell–Forbes Northern Labrador Expedition, 1931. Rhodora 38:102–161.

BOIVIN, B. 1966. Enumeration des plantes du Canada. Naturaliste Canad. 93:265.

FERNALD, M. L. 1935. Critical plants of the upper Great Lakes region of Ontario and Michigan. Rhodora 37:197–222.

HULTÉN, E. 1958. The Amphi-Atlantic plants and their Phytogeographical Connections. Almqvist & Wiksell, Stockholm.

————. 1968. Flora of Alaska and Neighboring Territories. Stanford Univ. Press, Stanford, California.

MARQUIS, R. J. and E. G. VOSS. 1981. Distributions of some western North American plants disjunct in the Great Lakes region. Michigan Bot. 20:53–82.

PAYETTE, S. and E. LEPAGE. 1977. La flore vasculaire du golfe de Richmond, baie d'Hudson, Nouveau-Québec. Provancheria 7:1–68.

ROLAND, A. E. and E. C. SMITH. 1969. The Flora of Nova Scotia. Nova Scotia Museum, Halifax, N.S.

ROULEAU, E. 1956. A checklist of the vascular plants of the province of Newfoundland (including the French Islands of St. Pierre and Miquelon). Contr. Inst. Bot. Univ. Montréal 69:41–98.

ROUSSEAU, C. 1974. Géographie floristique du Québec-Labrador. Les Presses de l'Université Laval, Québec.

ROUSSEAU, J., V.-C. WYNNE-EDWARDS, and P. M. DANSEREAU. 1937. Quelques additions importantes à la flore de la région du Bic. Ann. ACFAS 3:95.

SCOGGAN, H. J. 1950. The flora of Bic and the Gaspé Peninsula, Québec. Natl. Mus. Canada Bull. 115:1–399.

SOPER, J. H. 1954. The Hart's Tongue Fern in Ontario. Amer. Fern J. 44:129–147.

THOMPSON, P. W. 1962. An unusual fern station on South Manitou Island, Michigan. Amer. Fern J. 52:157–159.

WAGNER, D. H. 1979. Systematics of Polystichum in western North America north of Mexico. Pteridologia 1:1–64.